Amendments to the Claims

Rewrite the claims as set forth below. This listing of claims will replace all prior versions and listings of claims in this application:

1. (Currently Amended) An assembly for characterizing weathering reciprocity of a material comprising: an array of natural accelerated weathering test apparatus wherein each natural accelerated weathering test apparatus being of the type used to concentrate solar radiation upon an associated test specimen formed from the material and including a temperature control system for maintaining the associated test specimen at a desired temperature, wherein the temperature control system includes: a feedback device mounted on each natural accelerated weathering test apparatus adjacent the associated test specimen for exposure to the concentrated solar radiation and generating a test signal responsive to a temperature thereof and representative of the associated test specimen temperature; an input device for continuously generating a dynamic reference signal representative of a complex temperature cycle of an end-use application of the material; and a controller connected to the input device and the feedback device; the controller responsive to the dynamic reference signal and the test signal for generating a control signal representative of the desired temperature for selectively controlling the temperature control system in order to adjust the temperature of the associated test specimen to the desired temperature; and a plurality of sets of the natural accelerated weathering test apparatus defined within the array, wherein all of the associated test specimen[[s]] disposed in each set of the plurality of sets of the natural accelerated weathering test apparatus are exposed to a different solar radiation intensity.

2. Canceled

3. (Withdrawn; Currently amended; Rejoined) The assembly as recited in claim 1, wherein the temperature control system dynamically defines the desired temperature of the test

associated specimen[[s]] to simulate complex temperature cycles of an end-use application of the material.

4. (Withdrawn; Rejoined) The assembly as recited in claim 1, wherein each of the plurality of sets includes at least one natural accelerated weathering test apparatus.

5. (Withdrawn; Currently amended; Rejoined) The assembly as recited in claim 1, wherein each natural accelerated weathering test apparatus further includes a concentrating device for directing concentrated solar radiation intensity upon the associated test specimen[[s]].

6. (Withdrawn; Rejoined) The assembly as recited in claim 5, wherein each concentrating device includes at least one concentrating element.

7. (Withdrawn; Rejoined) The assembly as recited in claim 5, wherein each concentrating device includes a number of concentrating elements CE such that the number of concentrating elements CE is directly proportional to a number of each set S of the plurality of sets, whereby the number of concentrating elements is determined from the equation: CE=S.

8. (Withdrawn; Rejoined) The assembly as recited in claim 5, wherein each concentrating device includes a number of concentrating elements CE such that the number of concentrating elements CE is proportional to a number of each set S of the plurality of sets, whereby the number of concentrating elements is determined from the equation: CE=S*2.

9. (Withdrawn; Rejoined) The assembly as recited in claim 8, wherein a first set includes two concentrating elements; a second set includes four concentrating elements; a third set includes six concentrating elements; a fourth set includes eight concentrating elements; and a fifth set includes ten concentrating elements.

10. (Withdrawn; Currently amended; Rejoined) The assembly as recited in claim 6, wherein each concentrating element may be adjusted with respect to the associated test specimen[[s]] in order to provide the different solar radiation intensity.

11. (Withdrawn; Currently amended; Rejoined) The assembly as recited in claim 5, wherein each concentrating device has a focal length which may be adjusted with respect to the associated test specimen[[s]] in order to provide the different solar radiation intensity.

12. Canceled

13. (Withdrawn; Currently amended; Rejoined) The assembly as recited in claim 1[[2]], wherein the input device of a first natural accelerated weathering test apparatus is disposed remote from the array.

14. (Withdrawn; Rejoined) The assembly as recited in claim 13, wherein the input device of each other natural accelerated weathering test apparatus consecutively links in series the first one natural accelerated weathering test apparatus and the other natural accelerated weathering test apparatus of the array such that the other natural accelerated weathering test apparatus are dependently controlled from the first one natural accelerated weathering test apparatus.

15. (Withdrawn; Rejoined) The assembly as recited in claim 13, wherein the input device of each other natural accelerated weathering test apparatus is connected to the first one natural accelerated weathering test apparatus.

16. (Withdrawn; Currently amended; Rejoined) The assembly cited by claim [[12]] 13, wherein the input device is one of a temperature sensitive component, an apparatus for replaying a recorded environment temperature cycle, an apparatus for generating a complex temperature cycle and a non-contact monitoring device.

17. Canceled

18. (Currently Amended) The assembly cited by claim 1[[7]], wherein the input device is one of a temperature sensitive component, an apparatus for replaying a recorded environment temperature cycle, an apparatus for generating a complex temperature cycle and a non-contact monitoring device.

19. (Currently Amended) The assembly recited by claim 1[[7]], wherein the feedback device is one of a temperature sensitive component and a non-contact monitoring device.

20. (Currently Amended) The assembly recited by claim 1[[7]], wherein the feedback device is connected in a heat conductive relationship to a panel mounted adjacent the associated test specimen.

21. (Original) The assembly recited by claim 20, wherein the feedback device further includes a black coating overlying the feedback device and the panel for absorbing the solar radiation intensity impinging thereon.

22. (Currently Amended) The assembly as recited in claim 1[[7]], wherein the temperature control system includes an air circulation device for moving ambient air over the test associated specimen, said air circulation device including an electric motor and a fan powered by the electric motor for creating a flow of ambient air.

23. (Currently Amended) The assembly as recited in claim 1[[7]], wherein the temperature control system includes a base contiguous with the associated test specimen and at least one fin which extends from the base into an air tunnel having a fan for moving air therethrough in order to dissipate heat from the test associated specimen to air moved through the air tunnel by the fan.

24. (Previously Presented) The assembly as recited in claim 23, wherein the temperature control system is a metallic heat sink.

25. (Currently Amended) The assembly as recited in claim 1[[7]], wherein the temperature control system includes a base contiguous with the associated test specimen, at least two legs which extend from the base into an air tunnel having a fan for moving air therethrough in order to dissipate heat from the associated test specimen to the air moving through the air tunnel, a top connected to each leg having a first end and a second end and a voltage source applied across the first and second ends of the top.

26. (Original) The assembly as recited in claim 25, wherein adjacent legs are constructed of dissimilar semiconductor material.

27. (Currently Amended) The assembly as recited in claim 1[[7]], wherein the temperature control system includes a flexible walled vessel containing a coolant adequate to adjust the desired temperature of the associated test specimen wherein the flexible walled vessel conforms to the associated test specimen as a result of the coolant disposed therein.

28. (Original) The assembly as recited in claim 27, wherein the flexible walled vessel is operatively connected to an inlet in communication with a coolant source and an outlet regulated to remove the coolant from the flexible walled vessel at a desired rate.

29. (Original) The assembly as recited in claim 27, wherein the coolant is selected from the group consisting essentially of refrigerated air, ethylene glycol, fluorocarbon refrigerants, alcohol, refrigerant gases and fluids used for heat exchange.

30. (Withdrawn; Currently amended; Rejoined) ~~An assembly for characterizing weathering reciprocity of a material comprising:~~

~~an array of natural accelerated weathering test apparatus of the type used to concentrate solar radiation upon a test specimen formed from the material~~

and ~~including a temperature control system for maintaining the test specimen at a desired temperature;~~

~~a plurality of sets of~~ the ~~natural accelerated weathering test apparatus defined within the array;~~

~~the test specimens in each set exposed to a different solar radiation intensity;~~

The assembly as recited in claim 1, further comprising a plurality of groups of the natural accelerated weathering test apparatus defined within the array; and all of the associated test specimen[[s]] disposed in each group of the plurality of groups of the natural accelerated weathering test apparatus are maintained at a temperature offset relative to the desired temperature.

31-58. Canceled

59. (Withdrawn; Rejoined) The assembly as recited in claim 30, wherein the offset is one of an absolute offset, a proportional offset, a function offset and no offset.

60. (Withdrawn; Currently amended; Rejoined) The assembly as recited in claim [[41]] 30, wherein the controller further includes an offset device for applying the offset to the desired temperature.

61. (Withdrawn; Rejoined) The assembly as recited in claim 60, wherein the offset is one of an absolute offset, a proportional offset, a function offset and no offset.

62. Canceled

63. Canceled

64. (Withdrawn; Rejoined) The assembly as recited in claim 30, wherein each group includes at least one natural accelerated weathering test apparatus from each set.

65. (Withdrawn; Currently amended; Rejoined) The assembly as recited in claim 30, wherein the plurality of groups includes: a first group having all of the associated test specimen[[s]] disposed in the first group maintained at a first offset from the desired temperature; a second group having all of the associated test specimen[[s]] disposed in the second group maintained at a second offset from the desired temperature; and a third group having all of the associated test specimen[[s]] disposed in the third group maintained at a third offset from the desired temperature.

66. (Withdrawn; Rejoined) The assembly as recited in claim 65, wherein the first, second and third offsets are each one of an absolute offset, a proportional offset, a function offset and no offset.

67. (Withdrawn; Currently amended; Rejoined) The assembly as recited in claim 30, further comprising ~~An assembly for characterizing weathering reciprocity of a material comprising:~~

a plurality of arrays of the natural accelerated weathering test apparatus ~~wherein each natural accelerated weathering test apparatus being of the type used to concentrate solar radiation upon~~ a ~~test specimen formed from the material~~

and ~~including a temperature control system for maintaining the test specimen at a desired temperature;~~

~~a plurality of sets of~~ the ~~natural accelerated weathering test apparatus defined within each array;~~

~~the test specimens in each set exposed to a different solar radiation intensity;~~

~~a plurality of groups of~~ the ~~natural accelerated weathering test apparatus defined within each array;~~

~~the test specimens in each group maintained at a temperature offset relative to the desired temperature; and~~

wherein all of the associated test specimen[[s]] disposed in each array of the plurality of arrays of the natural accelerated weathering test apparatus are exposed to a different desired solar radiation wavelength range.

68-103. Canceled

104. (Withdrawn; Currently amended; Rejoined) The assembly as recited in claim [[67]] 30, wherein the plurality of arrays includes: a first array having all of the associated test specimen[[s]] disposed in the first array exposed to a first preselected wavelength range; a second array having all of the associated test specimen[[s]] disposed in the second array exposed to a second preselected wavelength range; and a third array having all of the associated test specimen[[s]] disposed in the third array exposed to a third preselected wavelength range.

105. (Withdrawn; Currently amended; Rejoined) A method for characterizing weathering reciprocity of a material comprising: configuring a plurality of natural accelerated weathering test apparatus wherein each natural accelerated weathering test apparatus being of the type used to concentrate solar radiation upon an associated test specimen formed from the material[[s]] in an array; connecting a temperature control system to each of the natural accelerated weathering test apparatus disposed in the array, wherein the temperature control system includes: a feedback device mounted on each natural accelerated weathering test apparatus adjacent the associated test specimen for exposure to the concentrated solar radiation and generating a test signal responsive to a temperature thereof and representative of the associated test specimen temperature; an input device for continuously generating a dynamic reference signal representative of a complex temperature cycle of an end-use application of the material; and a controller connected to the input device and the feedback device; the controller responsive to the dynamic reference signal and the test signal for generating a control signal representative of the desired temperature for selectively controlling the temperature control system in order to adjust the temperature of the associated test specimen to the desired temperature; defining a plurality of sets of the natural accelerated weathering test apparatus within the array; maintaining the associated test specimen[[s]] at a desired temperature; and exposing all of the associated test specimen[[s]] disposed in each set of the plurality of sets of the natural accelerated weathering test apparatus to a different solar radiation intensity.

106. (Withdrawn; Rejoined) The method as recited in claim 105, wherein the desired temperature is dynamically defined by the temperature control system to simulate complex temperature cycles of an end-use application of the material.

107. (Withdrawn; Currently amended; Rejoined) The method as recited in claim 105, wherein each natural accelerated weathering test apparatus further includes a concentrating device for directing concentrated solar radiation intensity upon the associated test specimen[[s]].

108. (Withdrawn; Rejoined) The method as recited in claim 107, wherein each concentrating device includes at least one concentrating element.

109. (Withdrawn; Rejoined) The method as recited in claim 107, wherein each concentrating device includes a number of concentrating elements CE such that the number of concentrating elements CE is directly proportional to a number of each set S of the plurality of sets, whereby the number of concentrating elements is determined from the equation: CE=S.

110. (Withdrawn; Rejoined) The method as recited in claim 107, wherein each concentrating device includes a number of concentrating elements CE such that the number of concentrating elements CE is proportional to a number of each set S of the plurality of sets, whereby the number of concentrating elements is determined from the equation: CE=S*2.

111. (Withdrawn; Rejoined) The method as recited in claim 110, wherein a first set includes two concentrating elements; a second set includes four concentrating elements; a third set includes six concentrating elements; a fourth set includes eight concentrating elements; and a fifth set includes ten concentrating elements.

112. (Withdrawn; Currently amended; Rejoined) The method as recited in claim 108, wherein the step of exposing the test associated specimen[[s]] comprises configuring each set in the array such that the concentrating devices in each set have a different number of concentrating elements.

113. (Withdrawn; Currently amended; Rejoined) The method as recited in claim 108, wherein each concentrating element may be adjusted with respect to the test associated specimen[[s]] in order to provide the different solar radiation intensity.

114. (Withdrawn; Currently amended; Rejoined) The method as recited in claim 107, wherein each concentrating device has a focal length which may be adjusted with respect to the associated test specimen[[s]] in order to provide the different solar radiation intensity.

115. (Withdrawn; Currently amended; Rejoined) ~~A method for characterizing weathering reciprocity of a material comprising:~~

~~configuring a plurality of natural accelerated weathering test apparatus, wherein each natural accelerated weathering test apparatus being of the type used to concentrate solar radiation upon a test specimen formed from the materials in an array;~~

~~connecting a temperature control system to each~~ of the ~~natural accelerated weathering test apparatus disposed in the array;~~

~~defining a plurality of sets of the natural accelerated weathering test apparatus within the array;~~

The method as recited in claim 105, further comprising defining a plurality of groups of the natural accelerated weathering test apparatus within the array;

~~determining a desired temperature for the test specimens;~~

~~exposing the test specimens in each set to a different solar radiation intensity~~; and

maintaining all of the associated test specimens disposed in each group of the plurality of groups of the natural accelerated weathering test apparatus at a temperature offset to the desired temperature.

116-125. Canceled

126. (Withdrawn; Currently amended; Rejoined) The method as recited in claim [[125]] 105, wherein the input device of a first one natural accelerated weathering test apparatus is disposed remote from the array.

127. (Withdrawn; Rejoined) The method as recited in claim 126, wherein the input device of each other natural accelerated weathering test apparatus consecutively links in series the first one natural accelerated weathering test apparatus and the other natural accelerated weathering test apparatus of the array such that the other natural accelerated weathering test apparatus are dependently controlled from the first one natural accelerated weathering test apparatus.

128. (Withdrawn; Rejoined) The method as recited in claim 126, wherein the input device of each other natural accelerated weathering test apparatus is connected to the first one natural accelerated weathering test apparatus.

129. (Withdrawn; Currently amended; Rejoined) The method cited by claim [[125]] 105, wherein the input device is one of a temperature sensitive component, an apparatus for replaying a recorded environment temperature cycle, an apparatus for generating a complex temperature cycle and a non-contact monitoring device.

130-132. Canceled

133. (Withdrawn; Currently amended; Rejoined) The method recited by claim [[131]] 105, wherein the feedback device is one of a temperature sensitive component and a non-contact monitoring device.

134. (Withdrawn; Currently amended; Rejoined) The method as recited in claim [[131]] 105, wherein the temperature control system includes an air circulation device for moving ambient air over the associated test specimen, said air circulation device including an electric motor and a fan powered by the electric motor for creating a flow of ambient air.

135. (Withdrawn; Currently amended; Rejoined) The method as recited in claim [[131]] 105, wherein the feedback device is connected in a heat conductive relationship to a panel mounted adjacent the associated test specimen.

136. (Withdrawn; Currently amended; Rejoined) The method as recited in claim [[131]] 105, wherein the feedback device further includes a black coating overlying the feedback device and the panel for absorbing the solar radiation intensity impinging thereon.

137. (Withdrawn; Currently amended; Rejoined) The method as recited in claim [[131]] 105, wherein the temperature control system includes a base contiguous with the associated test specimen and at least one fin which extends from the base into an air tunnel having a fan for moving air therethrough in order to dissipate heat from the associated test specimen to air moved through the air tunnel by the fan.

138. (Withdrawn; Rejoined) The method as recited in claim 137, wherein the temperature control system is a metallic heat sink.

139. (Withdrawn; Currently amended; Rejoined) The method as recited in claim [[131]] 105, wherein the temperature control system includes a base contiguous with the associated test specimen[[s]], at least two legs which extend from the base into an air tunnel having a fan for moving air therethrough in order to dissipate heat from the associated test specimen[[s]] to the air moving through the air tunnel, a top connected to each leg having a first end and a second end and a voltage source applied across the first and second ends of the top.

140. (Withdrawn; Rejoined) The method as recited in claim 139, wherein adjacent legs are constructed of dissimilar semiconductor material.

141. (Withdrawn; Currently amended; Rejoined) The method as recited in claim [[131]] 105, wherein the temperature control system includes a flexible walled vessel containing a coolant adequate to adjust the desired temperature of the associated test specimen wherein the flexible walled vessel conforms to the associated test specimen as a result of the coolant disposed therein.

142. (Withdrawn; Rejoined) The method as recited in claim 141, wherein the flexible walled vessel is operatively connected to an inlet in communication with a coolant source and an outlet regulated to remove the coolant from the flexible walled vessel at a desired rate.

143. (Withdrawn; Rejoined) The method as recited in claim 141, wherein the coolant is selected from the group consisting essentially of refrigerated air, ethylene glycol, fluorocarbon refrigerants, alcohol, refrigerant gases and fluids used for heat exchange.

144. (Withdrawn; Rejoined) The method as recited in claim 115, wherein the offset is one of an absolute offset, a proportional offset, a function offset and no offset.

145. (Withdrawn; Rejoined) The method as recited in claim [[125]] 115, wherein the controller further includes an offset device for applying the offset to the desired temperature.

146. (Withdrawn; Rejoined) The method as recited in claim 145, wherein the offset is one of an absolute offset, a proportional offset, a function offset and no offset.

147. (Withdrawn; Rejoined) The method as recited in claim [[131]] 105, wherein the controller further includes an offset device for applying an offset to the desired temperature.

148. (Withdrawn; Rejoined) The method as recited in claim 147, wherein the offset is one of an absolute offset, a proportional offset, a function offset and no offset.

149. (Withdrawn; Rejoined) The method as recited in claim 115, wherein each group includes at least one natural accelerated weathering test apparatus from each set.

150. (Withdrawn; Currently amended; Rejoined) The method as recited in claim 115, wherein the plurality of groups includes: a first group having all of the associated test specimen[[s]] disposed in the first group maintained at a first offset from the desired temperature; a second group having all of the associated test specimen[[s]] disposed in the second group maintained at a second offset from the desired temperature; and a third group

having all of the associated test specimen[[s]] disposed in the third group maintained at a third offset from the desired temperature.

151. (Withdrawn; Rejoined) The method as recited in claim 150, wherein the first, second and third offsets are each one of an absolute offset, a proportional offset, a function offset and no offset.

152. (Withdrawn; Currently amended; Rejoined) The method as recited in claim 105, further comprising ~~A method for characterizing weathering reciprocity of a material comprising:~~

configuring [[a]] the plurality of natural accelerated weathering test apparatus ~~wherein each natural accelerated weathering test apparatus being of the type used to concentrate solar radiation upon~~ a ~~test specimen formed from the material,~~ in a plurality of arrays;

~~connecting a temperature control system to each of the natural accelerated weathering test apparatus disposed in each array;~~

~~defining a plurality of sets of the natural accelerated weathering test apparatus within each array;~~

~~defining a plurality of groups of the natural accelerated weathering test apparatus within each array;~~

~~determining a desired temperature for the test specimens;~~

~~exposing the test specimens in each set to a different solar radiation intensity;~~

~~maintaining the test specimens in each group at a temperature offset to the desired temperature;~~ and

exposing all of the associated test specimens disposed in each array of the plurality of arrays of the natural accelerated weathering test apparatus to a different desired solar radiation wavelength range.

153-188. Canceled

189. (Withdrawn; Currently amended; Rejoined) The method as recited in claim [[152]] 105, wherein the plurality of arrays includes: a first array having all of the associated test specimen[[s]] disposed in the first array exposed to a first preselected wavelength range; a second array having all of the associated test specimen[[s]] disposed in the second array exposed to a second preselected wavelength range; and a third array having all of the associated test specimen[[s]] disposed in the third array exposed to a third preselected wavelength range.